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ABSTRACT

The language laboratory is a potentially valuable teaching aid. The students' motivation must not be destroyed, however, by forcing them to sit behind a tape recorder in a booth for 45 minutes. They must be given breaks, the working pace must be changed several times, and they must be convinced that they are doing something useful for their language skills. Close supervision and individual guidance are essential for keeping motivation alive. Some work which is best transferred from the classroom to the laboratory is first practice of texts and conversations and structural exercises. A typical low-cost language lab will be based on cassette recorders; booths should not be used because they interfere with normal visual and aural contact. Two conditions must be met if the lab is to function properly as a teaching aid: (1) all material used by the students should be prerecorded, and (2) an instructor should have no more than ten students at one time. Three complaints are frequently made against language labs: (1) a stifling physical layout, (2) an impossibly high student-teacher ratio, and (3) the irrelevance of lab material to work done in class. A lab program must succeed in eliminating these complaints. (CFM)

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Making the Language Laboratory Work

Notes on an Integrated Approach

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These notes on language lab work - as part of a modern language programme - are based on my adventures with tapes, students, and instructors over the past ten years at the university level.

First experiences go back to the time when close to five dozen specific lab lessons had to be written and recorded to accompany language material for which tapes were not available commercially. Scores of additional exercises and readings have been added since to allow language lab practice at various levels of proficiency in German.

Having at various times been put in charge of the language lab and its resources on behalf of the subject areas in modern languages, I also became involved with the training of lab assistants as well as the preparations for, and the purchase of, a new 40-position language lab. In the course of this process, with the assistance of specialists from an electronics firm in Winnipeg, a

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close to ideal language lab was designed on paper, but was never built: compromises are part of the technical as well as the financial reality.

An attempt is made here to analyze the essential contribution of a language lab facility toward language learning and to delineate both a low-cost installation and an electronically full-fledged laboratory, including basic requirements and desirable features.

PART I:

FUNCTION AND CAPABILITY OF A LANGUAGE LAB IN MODERN LANGUAGE INSTRUCTION

To formulate a relative truth in an absolute way, language labs have taken language instructors by surprise. The hardware, especially after the introduction of the two-track tape recorder in 1953, was available before there was time to develop any models on how to integrate this new equipment into a modified approach to the whole question of language instruction.

The language lab had been accepted, to a larger extent, on the assumption that anything so revolutionary would revolutionize the methods of instruction by its mere existence. However, "Tapes are like the miracle drugs," Professor Harris stated in an article in the French Review in April 1961, "in order to be effective they must be made by experts, prescribed by experts, and administered by experts. It is naive to imagine tapes are like the patent medicines that are guaranteed to cure whatever is wrong with you."

During the early 'sixties, the discussion of lab-oriented teaching in modern language instruction came out into the open after such methods had been developed in a number of language research centres, but *conclusive*[1] efficiency tests evaluating different approaches side by side were not conducted: there are so many parameters involved that a definitive answer may never emerge.

Isolated experiments and small-scale comparisons of diverse methods have, however, contributed significantly to our understanding of the language lab as a teaching aid by exposing the most common fallacies and misapprehensions concerning it. We do not have a blueprint for the approach to the language lab, but we have gained a fairly good understanding of the *range within which* we can operate in terms of methodological integration of the physical layout and the technical requirements in order to guarantee a good measure of success in the use of a language lab facility.

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The learning process as a whole, not only in terms of languages acquisition, cannot be reduced to a formula where time input equals success. Success is a function of intensity of involvement multiplied by time input (zero intensity x 50 lessons = zero success).

By having enrolled in the class, the student shows motivation which can generate the mental concentration for intensive participation in the learning process. But this initial momentum has to be retained in the language lab just as much as in the classroom. The secret of a good classroom lesson - variety in the sense of a planned structure of different levels of intensity - also seems to hold true of language lab lessons.

There is no better way of destroying initial motivation than by putting a student behind a tape recorder in a carrel, switching on the power, and letting him sit there for 45 minutes. If he is to profit from his time in the language lab, he must be given breaks, the working pace must be changed several times, and he must be convinced that he is doing something useful for his language skills.

Breaks can be provided by the instructor, either for the individual or the class as a whole. This requires unrestricted visual contact, a writing board, and possibly projection facilities. *Box-type carrels should be avoided.*

The need for a change in pace can, of course, be satisfied best by shorter lab sessions, but dialogues, anecdotes, poetry reading, even pronunciation-specials or vocabulary games and songs can also be used to that end. All the while, close supervision and individual guidance are essential for keeping motivation for language lab work alive.

The most radical departure from established approaches to the language lab will have to occur in the area of the self-review exercises, the original and most persistent fallacy about language lab work. They are not to be considered as entirely useless, but the belief that the average or even above-average student is really able and willing to learn from his or her own mistakes has never been proven. A whole sales and promotion industry relies on the view that most people hardly ever learn from their own mistakes. Klaus Bung, in his book Programmed Learning and the Language Laboratory (London, 1968), went so far as to say that "students' practice not aimed at improving pronunciation and intonation seldom benefits from being recorded and replayed later."

As much as I must support this statement from my own experience, it should not be understood to imply that the recording feature found in most language labs of recent design is redundant. A student who knows that nothing of what he is doing is being recorded will

tend to work at a considerably lower rate of intensity and involvement than a student who is aware that every word and sound he pronounces will be recorded on tape and is - at least potentially - available for recall. Again, close supervision is essential in order to realize this potential; otherwise, the psychological effect wears off.

But then, is there anything left which the language lab can do that could not be done in the classroom? After all, we have stated that the lab should look very much like the classroom, should allow as much as possible the same kind of an atmosphere as a classroom, and should ideally not be used for a full period. It also depends on a low student-teacher ratio. Many administrators gave their approval for the purchase of a language lab on the understanding that the one-time investment would save them years and years of teachers' salaries. If we tell them now that the language lab doesn't cost them less but rather requires more instructional staff, will we not get kicked right out of the school?

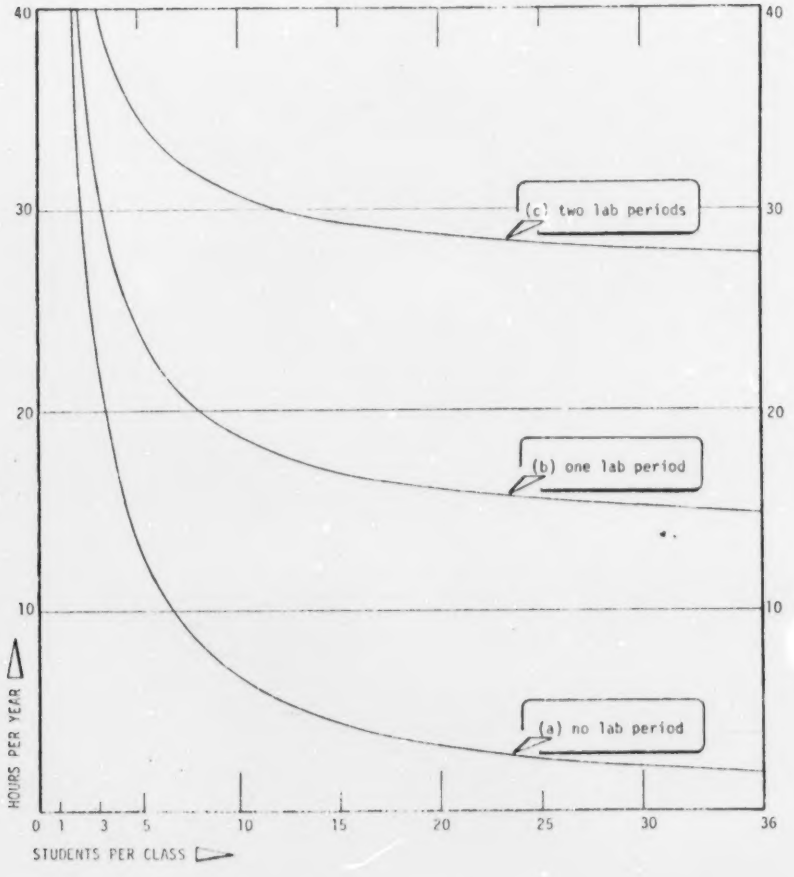
The well known problem of the traditional method which does not enable students to converse in a language - even if they achieve a relatively good competence in (silent) reading, comprehension, and writing - is not due to the method as such, but simply to the time that can be allocated to the oral skill. If we look at a modern language programme with one 45-minute lesson per day at an average high school in an average year of 40 school weeks, and compare the time a single student can spend in speaking the language (a) in a classroom programme, (b) in a programme with one lab period, and (c) in a programme with two lab periods, we get some significant results.

Assuming that the average 45-minute lesson consists of 5 minutes adaptation time,[2] 20 minutes teacher time, and 20 minutes' time for student responses or reading, a single student in a class of ten would have 2 minutes per hour, that is 10 minutes per week or a total of 6 hours and 40 minutes during a full academic year to use his *Sprechwerkzeuge* - mouth, lips, tongue, and so forth, in a controlled situation.

If the same class of ten visits the lab once a week for a full period consisting of 5 minutes' dead time for mechanical operations, 20 minutes for cues and 20 minutes for student responses,[3] the time a single student spends in actively speaking the language increases to 28 minutes per week or to 18 hours and 40 minutes per school year, that is 180 percent more than in a pure classroom programme. With two labs per week, this would increase to 460 percent of the classroom approach with a total of 30 hours and 40 minutes - almost five times better than the conventional situation concerning controlled oral expression.

GRAPH I

Hours of oral practice per year
in classes from 1 to 36 students:



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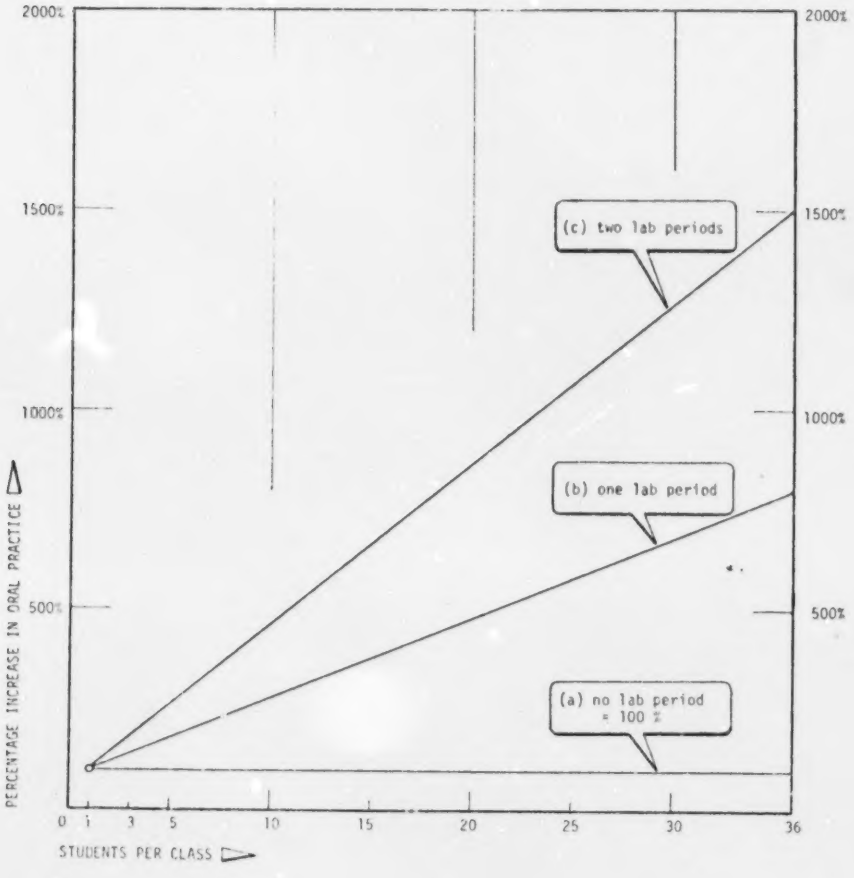
GRAPH 2

Comparison of increased oral practice in programmes with lab over the straight classroom approach:



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As a student's speaking time naturally is a function of the number of students in the class, the differential grows as the student number increases. In a class of 20, for example, a single student will ordinarily only be able to speak the language for a total of three hours and 20 minutes over the whole year, if he is in a classroom programme, while a combination with one lab per week increases controlled oral expression to 16 hours (460 percent of the lab-less programme), or to 28 hours and 40 minutes (860 percent with two labs per week.

On a sliding scale from 1 student to 36 students in a class, GRAPH 1 illustrates the total hours per year a single student can spend speaking the new language on the basis of these three different approaches; GRAPH 2 illustrates the increased opportunity to speak the language in the (b) one lab and (c) two labs per week approaches as compared to the (a) classroom programme (=100 %) for any number of students up to 36.[4]

Exposure to a language in the early stages of language studies does not help a student very much to improve his general language skills, except for his receptive faculty. A student is even less likely to profit from a badly to moderately well performed attempt at reading or speaking by one of the classmates. Especially for first practice of texts and conversations, the lab is the ideal vehicle of instruction where all the students can practise simultaneously and yet individually.

Structural exercises, the study of grammar, especially in the direct or inductive methods, certainly require the guidance which only the instructor can give, but, sooner or later, the students will be asked to perform on their own. Where homework is accepted as part of the method, it often contains drills with a relatively low probability of making errors. Verifying the accuracy of such homework, as well as the continued practice of drills on new material past the point of initial befuddlements, is likely to produce a state of reduced mental concentration on the part of the students who are not called to task, and that is usually all but one.

This kind of work is best transferred to the lab. Students who have few problems with the structures as such are not unnecessarily slowed down, while students who do have problems can stop, reflect and even ask for personal clarification. But, at the same time, all students also practise their oral and aural skills. As a result of the problems which have emerged during the lab sessions, the instructor will bring a few structures, examples, difficult words, and so forth, back to the class as a whole, since he has seen where further clarification or practice is still needed.

In sum, as much as the language lab may have been overrated in the past as the radical solution to end all language learning problems, it still has its original and unique advantages to offer.

a) Simultaneously, more than one student
b) . . . . . can practise speaking a language
c) . . . . . and work individually
d) . . . . . at a relatively high level of concentration[5]
e) . . . . . in response to various native speakers
f) . . . . . in a controlled learning situation.[5]

PART II:

ELECTRONIC EQUIPMENT AND PHYSICAL LAYOUT

By necessity, the following discussion has to be held in fairly general terms. The selection of the electronic equipment depends largely on the list of companies or agents doing business in a given area and on the extent of their service guarantees and the quality and availability of their service. The physical layout is determined by space made available for language lab work and possible alternative uses to which such space might be put. Also it is not necessary to duplicate the various guides to language lab planning and purchasing[6] or to argue with genuine company expertise in language lab installation. I much prefer to touch on aspects of equipment and space as they affect the patterns of instruction and learning.

A typical low-cost language lab will be based on cassette recorders, as they can be built more cheaply both electronically and mechanically than reel-to-reel units. Their smaller size permits a fairly inexpensive installation, if they are to be used in fixed positions, and even allows mobile deployment of 10 or 12 student units per mobile console. As fixed installations, they can accommodate any desired number of students.

The life-span of this kind of equipment can be surprisingly good, even though the design is based on home-entertainment units, but obviously one should not expect to make continuous full-day use of a low-cost system. To determine whether the equipment you are considering can endure the use you want to get out of it, ask for company references and talk to the people who are already using it - never buy without this precaution.[7]

Maintenance can still be arranged on a mail-out basis as the units are lightweight and unproblematically wired. And, naturally,

the buyer has to take into consideration that low-cost equipment limits the flexibility of language lab work from a methodological point of view.

A sophisticated language lab of the 'seventies can be based on either cassette or reel-to-reel units, both types being specifically designed for the purpose. Both versions can be run for 10 to 12 hours a day without undue wear, but they do need regular maintenance on location. The wiring is delicate and requires fixed installation. In addition to the usual safeguards and precautions before signing a contract, the potential buyer should be aware that there are slightly cheaper "look-alike" versions on the market which, in terms of versatility, are not significantly superior to a low-cost system. They are either outdated, admittedly sturdy, versions which will remain on the market as long as school boards and institutions still fall for them (needless to say, they do have impressive lists of previous sales), or they are based on modern home entertainment equipment which, in the long run, may not hold up to demands put on a busy language lab. Any buyer going past a low-cost cassette system should not settle for less than a fully remote-controlled, dual console/free access system with all mechanical functions (forward, rewind, play, stop, and so on) engaged through solenoids[8]: these specifications virtually guarantee that one is dealing above the converted home-entertainment and beyond the language-lab-of-the-'fifties levels.

Some of the early, and unfortunately trend-setting, labs were designed, not by teachers, but by recording buffs. You can feel this when you enter such a place. What matters is the sound-proofing, the wiring, the switches, and the machines. The human being is simply an inconvenience requiring eight to nine square feet - not more! The carrels, in their ultimate form like immensely sound-proofed shower stalls with a door and a tiny window the size of an observation slit in a tank, are the product of an imagination seeing the world full of criss-crossing sound waves which have to be kept in place. The fact that language labs are usually arranged with their carrels all in a row across the room is based on a decision made by wires, not men.

The teacher console at the side or even in the back of a room - shielded by brick wall and double glass (bulletproof?) - is inherited from the media people. The student recorders and student controls are, with few exceptions,[9] still persistently installed in the center of the carrels, symbolizing the prevailing value system, but leaving little room for book and paper. The controls themselves are almost all right-hand oriented; only the rare left-handed student enjoys the convenience of being able to keep pen on paper while operating his recorder.[10] The buttons are all too often set neatly in a row

(the designers' say in things) forcing the student to look at them each time he changes the working mode. The list goes on.

If we are going to install a language lab, we have to ask ourselves what we want our students to do in this room and what we, as instructors, want to do with this room. If we want a flexible, multi-purpose room, we will tend toward a mobile lab which would mean, for the school as a whole, that the various language teachers will be able to hold lab sessions right in their own territory. If we do not want the hassle of open wires or cannot afford the time that goes into unpacking and packing a mobile lab, we will decide once and for all what seating arrangement would be optimal for a room and refuse to budge for the supplier who is conditioned to install in rows.

In the case of a low-cost lab, the existing desks may be able to accommodate the equipment, especially if we feel that there will be no need for an option to lock up the individual student recorders. A room where the floor can be reached by drilling holes through the ceiling below allows the easiest deployment of wires, otherwise a false floor might have to be considered.

One version of mixing a semi-fixed installation with a flexible multi-purpose room, which I have not seen anywhere yet, would consist of a strip of wooden cabinets about 10 to 12 inches high at a convenient level around the inside walls - very much like two bookshelf

boards running along the wall - divided into pigeon-holes large enough to hold a cassette recorder, a set of headphones, and some cable. The individual compartments can be locked, the space between the compartments can be put to all kinds of uses. The power and intercom cables run inside these strip-cabinets. For the lab sessions, the desks are arranged in a circle along the walls, and each student helps himself to his recorder and puts it on his desk. In front of the desks, there is unrestricted room for circulation, and the two cables to each recorder are not really in anybody's way.

The basic quarrel with carrels is their interference with normal visual and aural contact. Their presence virtually forbids a varied approach to the language lab lesson and forces on us the 45- or 50-minute non-stop lab session. Their basic purpose is to reduce the interference of voices from either side or from behind the student. In the early days of the language labs, this may have been a more serious problem, but nowadays a well-designed headphone can already absorb much of the noise that the walls of a carrel had to absorb. If, in addition, we do not insist on lining up eight students in a row and another eight so close behind them that circulation of people behind the chairs is often not possible, but rather rely on the looser, more classroom-like arrangement, we further alleviate the problem to the point where it has lost significance vis-à-vis the advantages of an open lab space. Carrels should only be used for specific study facilities: this is the only lab-related activity where you do not want or need to see anybody else.

PART III

SINE QUA NON CONDITIONS: THE 'MUSTS' WITHOUT WHICH THE LANGUAGE LAB CANNOT FUNCTION PROPERLY AS A TEACHING AID

III. 1. *PRERECORDING.* Realizing that the lab can perform only a limited number of functions, we must take advantage of these to the fullest possible extent. A very widespread misuse of the language lab is the so-called lock-step procedure which kills half the purpose of any language lab work, namely points (c), (d), and (f) of our list at the end of Part I. As a rule, all material used by the students should be prerecorded. On sophisticated equipment this can be done easily enough with the help of a time-switch - even overnight. On low-cost equipment, a cassette duplicator might do the trick, but it is in itself fairly expensive. The teacher could use the presence of the students at the end of a lab session to set all recorders into the record-standby mode and prerecord the next lab unit during the break. Or he can have his students, at the beginning of a lesson, load their cassettes and record a 10- to 15-minute programme while he conducts an ordinary classroom

portion of his teaching. But it is only with prerecorded material that a student can find his own pace, stop where he or she encounters a serious problem, and ask for clarification before continuing through exercises which otherwise would have to remain meaningless.

III. 2. *LOW STUDENT-TEACHER RATIO.* The language lab itself cannot offer the correction factor which is paramount to the improvement factor. The student on his own is rarely capable of correcting himself, and efficient lab supervision is a key element in an integrated use of the language lab in learning and practice. In fact, just as cigarette packs and ads carry the famous statement by the Surgeon General, all language lab equipment should prominently display the warning: FREQUENT REPETITION MAKES A MISTAKE PERFECT.[11]

Only the presence of the regular instructor who is familiar with his students' problems and abilities, as well as with all aspects of the course, is able to offer efficient lab supervision. In a 45-minute period, a single person is able to effectively supervise and correct approximately eight students in two or three intervals of up to two minutes each. Correcting a student only once without verifying soon after whether the student has actually overcome a particular problem is of little practical use.

While it is not absolutely necessary that full attention is given to every single student in every single lab session, it should not become the rule that only a fraction of the class can regularly be monitored and advised. For the physical layout of a language lab, a figure of at most 10 students per instructor is the upper limit. With language classes being often much larger, arrangements have to be made to allow two or even three instructors to work simultaneously with one class. At high schools, within the range of universities or teacher training colleges, the additional console position should ideally be filled by a trainee - possibly with a modified approach to the usual interning arrangements so that one person would function as a lab assistant for the duration of one full year. Where this is not practicable, timetables must be arranged in a way that colleagues can help each other out. In the latter case, the thought might occur to 'split' a class for lab purposes, but, psychologically, as well as in the interests of utmost flexibility in a curriculum, a single room version is to be preferred.

Most language instructors would agree that, far from being ideal, 15 to 20 students would constitute the upper limit for a modern language class taught by any kind of method, so most labs would be built to accommodate up to 20 students. On the other hand, the advantage of also keeping the exceptionally large class together has to be weighed against the ideal situation in lab monitoring. The physical layout of a lab should reflect the size of the average class (say two positions for classes usually ranging up to 20 students) in the number

of console positions, and the absolute administrative limit (say up to 25 students in one class, before two sections of 13 or more students each are opened) in the number of student positions. In addition, the student positions should be augmented by one back-up position for every new set of 10 units in anticipation of the occasional equipment breakdown, so that, in the present example, 28 student positions should be installed.

One might object that it is one thing to theorize about the need for low student-teacher ratio in the lab and the resulting dual or even treble console, but another thing to convince the administrator, who is responsible to the public for an adequate return for their funds, to put the extra salaries required for a double console operation. Let him consider this: the most frequent cause for the loss of a modern language of which so many adults complain is not in the lack of opportunity to use it - that opportunity can almost always be found - but the inability of a one-time language student to converse in it. If the emphasis on any one language skill has a positive effect on the language skills as a whole, it is the oral expression. The oral skills, and, closely linked to it, the aural one, are the basic requirements for a person retaining the active use of a language once learned.

Leisinger (p. 115) is quite correct when he says that, with enough lessons and small enough classes, we can do anything that could be done in the lab just as well in the classroom. But we have considered the costs: a language class with one hour per week will cost the institution $3,000 over the whole school year, assuming its teacher earns the moderate salary of $15,000 per annum. Consider, for example, a class of 16 students. If we are to give them, in a traditional classroom programme, the kind of opportunity to speak the language which they get in a programme with one lab period per week, we would have either to cut the class from 16 to four students (cf. graph 1) and run four sections of it or increase the number of classroom hours from five to 20 (cf. graph 2). In both instances, an additional cost of $9,000 would have to be envisaged. The language lab assistant or the colleague helping out during the one lab period will cost the institution the additional salary of $600. This is obviously only a theoretical argument, and we grant that, in a class of only four students, the individual would do considerably better than in a class of 16 with one lab per week of five periods. But even if the classroom version is perhaps not a full 15 times more expensive, it is still far above the cost/return equation of a one-lab-per-week programme.

III. 3. *LAB PROGRAMME INTEGRATION AND PROGRAMME MODIFICATION.* The most common complaints on the part of the students concerning lab

work is that they feel a lack of personal contact and that the material presented in the lab is irrelevant and boring. Where such complaints are voiced and found even partially true, the whole approach to working with a lab is in need of a methodical overhaul. The sterility of a lab programme can be traced to any one of three key defects, two of which have already been discussed:

i. a stifling physical layout
ii. an impossibly high student-teacher ratio, or
iii. the irrelevance of lab material to work done in class.

Methodological *and* practical integration of the material on tape is of utmost importance to keep a student's motivation alive and to conduct an efficient programme. Methodological integration is, to some degree, guaranteed if a text with an accompanying set of tapes is used, but only to some degree. Occasionally such tapes are an afterthought; in other cases, they are prepared by amateurs, carelessly enunciated, or hurriedly recorded. But whatever the quality of these tapes may be, excellent or rather bad, the instructor needs a simple, well soundproofed, always available recording room in order to occasionally edit, augment, or change the tape material he or she is using. Such changes can usually be made with little time and effort, if the recording and editing equipment is permanently available. But it is a matter of first setting up and connecting microphones and tape recorders, testing sound levels, and so forth; the necessary modifications of a lab programme will rarely ever be made, and the lab component of the language class is accordingly less satisfactory and less productive.

In order to achieve *practical integration*, the recording room is even more important. A particular instructor's style should not only be noticeable in the classroom, but just as much in the lab. Some of the readers of commercial tapes seem to be gifted with voices that would be most becoming to a director of a funeral home; others read with the impersonality of a racetrack announcer. Introductions to tapes will often be in need of change simply because of the sterility of a voice. More importantly, just as in the case with classroom material, the instructor will have to set certain goals for certain texts, use a special method to deal with certain exercises, and he may want to give additional explanations here and there. Moreover, if the physical layout of a lab or the workload put on it do not permit split classroom/lab periods, the 35- or 40-minute commercial tape has to be broken up with inserts giving the student's mind a rest from the drills and pronunciation: music, anecdotes, cultural information, or quite simply 'his master's voice' will help a lot. As far as the instructor is concerned, he will learn with just a little experience how to edit and modify tapes with no more time input than he would use in the preparation of an ordinary classroom lesson.

A fully integrated language lab programme, of course, means more than just buying and editing tapes. It is based on a long-term plan on what is best done in the classroom and what is best done in the lab. While such decisions depend to a certain degree on the method and style of the individual teachers and are necessarily based on their own didactic and methodological decisions, there are still a few aspects to this decision-making process which allow a discussion in general terms. In the introductory part to this paper we have already mentioned a few uncommon assignments for the language lab. But also the study of new sounds and words, the practice-reading of passages, conversation texts, and dictations which the instructor does not want to read himself, is material naturally suited for the language lab. Attempting to formulate a definition, we could say:

The language lab is the proper vehicle for:

a) the first encounter with and practice of new sounds, words and idioms, and the continued review of difficult sounds;
b) the continued practice and polishing of conversation and reading material, with emphasis on rhythm, stress, and intonation;
c) the continued practice of exercise past the point of initial befuddlement;
d) the practice of all pattern drills;
e) the verification of all homework with a low probability of mistakes; and
f) the regular exposure to voices of native speakers other than the instructor and the readers of the standard tape material (dictations and supplementary material).

Tape programmes accompanying most textbooks customarily only include points (b) and (d). Only a few courses keep up a methodical review of the articulation of difficult sounds (a). Exercises tend to be divided into two big groups: simple ones which get included in the tape programme (pattern drills), and difficult ones which are left to the instructor. But even in more demanding exercises, there is a point where they become routine for a number of students. Where this happens, the instructor should leave the tail-ends of such exercises to the language lab and move on to the next question (c). Regular class discussion of homework which is not meant to be handed in can be even more tedious. The students already know what it is all about and have, if they did their homework properly, already answered most of their own questions (e).

The timetable following illustrates, in a general and approximate way, how an instructor might go about intensifying the lab-component of his programme by using relatively short lab intervals in

TIME-FRAME FOR AN INTEGRATED APPROACH TO LANGUAGE LAB WORK

Basis: 5 days/week at 45 min.
3/5 classroom, 2/5 lab.

	Classroom exclusively	Begin in class --	Practise in lab	Lab exclusively	Begin in lab --	Continue in class	Homework
FRIDAY ??		5	10				
							45
MONDAY	15						
		10	20				
							45
TUESDAY	15			5	10	5	
	10						
							45
WEDNESDAY					15		
	15					15	
							45
THURSDAY			10		10	10	
	15						
							45
FRIDAY ?				10			
						20	
	70	15				50	135 CLASSROOM
			10	15	45		90 LAB
15 = time in minutes							225 Hours

1. Explain difficult sounds, words, idioms, possibly difficult structures. Practise new sounds, words, idioms, and key-passages from first text.
2. Read first text aloud. Try to understand new structures in context. Practise and memorize new words and idioms.
3. Ask questions on first text. Verify understanding of new structures in context. Translate key passages into mother tongue.
4. Conduct structural exercises (inductive method). Explain and practise grammar (deductive method).
5. Practise and write pattern drills. Read and try to understand second text.
6. Read second text. Mark reading mistakes in book.
7. Verify drills (5), discuss problems in class.
8. Transformation exercises: change known structures into new structures.
9. Individual students read larger portions of text. Focus on rhythm, stress, intonation.
10. Write transformation exercises. Practise on individual problems with pronunciation and reading.
11. Test reading of texts. Teacher records unsatisfactory performance or retains cassette for home study, devises correction programme. Supplementary material available on tape for good students.
12. Discuss informational or cultural aspects of texts by question-answer or conversation methods.
13. Discuss transformation exercises (10). Practise new structures in review (inductive method). Summarize grammar by examples (deductive).
14. Write combination drills or formal translation into second language. Prepare conversation.
15. Practise conversation material or write dictation.
16. Verify combination drills (14) or conduct combination drills. Discuss translation (14) in class or else use class time for (17).
17. Return and discuss hand-in of previous week. Review aspects of old and new structures in context.
18. Write composition or context translation in second language to hand in. Prepare free conversation.
19. Encounter new material (slide, description, anecdote, poem, song) and practise.
20. Conduct free conversation.

a full integration of lab and class work. The table illustrates typical steps within a single lesson unit (single chapter) and is based on a fairly fast language programme with one 45-minute period per day, an equal amount of homework time, and one lesson per week. From this basis, it should be easy to make adjustments to less intensive programmes by simply allocating more time to various aspects of the curriculum. Under the present assumption, the total time spent in the classroom context is 135 minutes (3/5) and the total time spent with lab equipment is 90 minutes (2/5).

If more homework time is available, the language lab aspect can be extended with a cassette lending library into the students' free time at school or to their homes. Especially the polishing of reading material (b), the practice of pattern drills (d) and the verification of homework (e) can be extended successfully with well motivated students, provided that the same type of activity is also kept on in the formal lab.

After a good two decades since the emergence of the modern two-track language lab, it has suddenly become fashionable to put down its merits and to doubt its role in modern language instruction. But equipment cannot be better than the people who handle it. Technologically, the language lab advanced considerably over these years, but too often it has been unquestioningly accepted as a ready-made, excellent piece of equipment. To be of any real use, the system has to be selected with foresight and moulded to fit an individual institution's and even individual teacher's needs. It has to become an integral part of the curriculum, and it has to be fed with meaningful and varied material.

FOOTNOTES

1. The word "conclusive" is to be emphasized. Most experiments are too specific and either include only relatively few students, or classes are carried out over only a short space of time. And almost all conclude with a call for "further research in this field" Cf. also footnote 4.

2. Students settling down, time needed to switch from one phase of the lesson to another, like blackboard to book to projection to dictation and so on, movement of students about the room for play-acting or blackboard work, and the time spent for assigning homework, collecting or distributing material.

3. The brief silence preceding an actual spoken answer is in effect part of the speaking process as long as the material on tape is properly paced and does not allow the student un-

due time "to think," as they say. And, of course, the purpose of this discussion is not to establish speaking time as such, but the differential which remains unchanged even if a detailed analysis were made of what constitutes students' speech and what does not.

4. While going over some source material, I found in Fritz Leisinger's book Elemente des neusprachlichen Unterrichts (Stuttgart, 1966, p. 114) a reference to a "carefully conducted comparative experiment by P. Doyé with the surprising result that a class under the continuous influence of a well-trained language instructor reached a better pronunciation skill than if the students had worked with the language lab." Leisinger adds that this particular result was "in part due to the fact that these students were able to reach almost the same speaking time as those partially taught in the lab" by having been exposed to "short sentences in oral production" (my translation). Naturally I hunted for this article: Peter Doyé, "Teaching French with and without the language laboratory," International Conference Modern Foreign Language Teaching. Papers and Reports of Groups and Committees. Preprints. Part I (Berlin, 1964, p. 67-76), only to find that the author himself cautions, "In our case it would be entirely incorrect to draw generalizing conclusions, - for two reasons: 1) The experiment was carried through over a rather short period of time (6 weeks). 2) The two groups were small in number and statistically not representative for a larger population (27 and 23 children between the ages of 12 and 14 in a beginners' programme)." In other words, the typical short-time, small-scale, interesting, but by no means conclusive, experiment which I have mentioned by way of introduction. Incidentally, Leisinger argues out of context; Doyé even points out that, given the two methods, the difference in time between lab group and the classroom group available for the practice of oral production is "... in the beginning of a language course ... relatively small, as the sentences are still short." And perhaps just as serious a misrepresentation is the fact that Leisinger conveniently omits Doyé's observation that, in this particular experiment, the language lab had helped "to bring about a specific skill better than another procedure could do. This skill was the independent oral use of the foreign language ...."

5. With some students, the level of concentration may not equal that of being called to "perform" in front of the class, but, by the same token, other students who may be overanxious in front of the class, especially during the early phase of a course, profit from being able to articulate words and sentences in privacy: therefore, the use of the word "relatively." The level of concentration can be considered "high" as, even with only a half-decent lab programme,

it is virtually impossible for the student to doze off or start daydreaming. As to the "controlled learning situation" in the lab as compared to the classroom, we can only achieve a selective control in the lab - unless we want to utilize the time - consuming complete but retroactive control which we might apply for the purpose of an exam. On the other hand, we hardly ever utilize the full control that the classroom offers. We have to be selective with our interference for the benefit of the class as a whole. In the lab, we can discuss a point with a student where in the classroom we would have to decide that "there is no time available" for doing so. The lab makes it possible to dwell on redundant or extrinsic aspects of our work. We could put it like this: the classroom allows full but selective control, the lab allows selective but full control.

6. To name just a few:

Edward M. Stack, The Language Laboratory and Modern Language Teaching (New York, 1960), pp. 149. Old-fashioned but with good hints on administrative aspects.

Alfred S. Hayes, Language Laboratory Facilities (Washington, 1963), pp. 119. A very useful buyer's guide.

Language Laboratories, published by the Department of Education and Science (London, 1968), pp. 32. Concise and fairly up-to-date.

Manfred Kummer and Ottomar Willeke, Arbeitsformen und Abläufe im Sprachlabor (Heidelberg, 1970), pp. 85. Up-to-date and informative

Louis J. Chatagnier and Gilbert Taggart, Laboratoires de langues; orientations nouvelles. Language Laboratory Learning: New Directions (Montreal, 1971), pp.231. Contains papers presented at the Canadian Language Laboratory Conference, Montreal, 1970.

7. With brand-new designs, one should exercise the same kind of caution as when confronted with a new line of cars: wait for next year's model. However, while cars of a new line usually still sell, companies in the language lab business are very anxious to sell their first few installations of a new design. The same holds true when a company or an agent is moving into a new area with a system which already sells elsewhere. Anyone tempted to have a first language lab of its kind should negotiate at least a two-year parts and labour warranty instead of the usual three-month or one-year contract, receive a good rebate, and have arrangements made for payment by installment over the warranty period - the later payments being due only if the warranty is satisfactorily honoured.

8. Solenoids are magnets used to translate an impulse into a mechanical motion. If, in a purely mechanical device (your ordinary typewriter), two conflicting movements are carried out, the device can jam. Solenoids working extremely fast usually establish a priority of one command over another; the circuits are such that while one switching procedure is under way any conflicting impulse is stalled; in the case of absolute simultaneity of impulses, they cancel each other. In practical terms, on recorders equipped with solenoids, a student can never 'touch' the operating mechanism; all he touches are surface switches. And, of course, solenoids are the basis of most remote control labs.

9. Strangely enough this may even be a problem with equipment from a highly specialized supplier.

10. The fact that the standard carrel design is hostile to books and written work may, in part, be due to the 'rise of the language labs' occurring at a time when the various direct and natural methods experienced their peak. The people working with these methods were naturally inclined to ask for language lab facilities.

11. This phrase is not mine, but unfortunately I am unable to recall the source.

(Part I and excerpts from Part III of this article have appeared in *Prisma*, vol. 5, no. 2, Winter 1976, pp.16-23.)